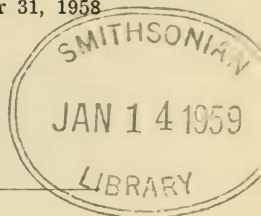


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



NEW RECORDS AND DESCRIPTIONS OF A NEW
GENUS AND A NEW SPECIES OF MILLIPEDS OF
THE FAMILY STRIARIIDAE (CHORDEUMIDA)

NELL B. CAUSEY
Fayetteville, Arkansas

The seldom collected, very slow moving, little millipeds of the North American family Striariidae are known from two areas, one eastern and the other western. The genera *Amplaria Striaria*, and *Vaferaria*, n. gen., occur in Oregon and California, while only the genus *Striaria* has been found in an area extending from Maryland to Indiana and south into Georgia. This family has been the subject of two papers (Cook 1899, Loomis 1936), but most of the records are fragmentary, and much work remains to be done on the group, both collection and description.¹

Most collections of striariids have been made in damp humus of hardwood forests, but Cook (1899) reported that in rather dry open woods in the District of Columbia *Striaria columbiana* outnumbered all other millipeds. The three species that have been collected in caves do not show obvious modification to cave life other than reduction of pigment of the body or of the ocelli. One species is known from fossils, probably of Pleistocene time, as well as from recent collections.

Mature specimens have been collected in all seasons, but mature males are very scarce in collections and are unknown for some species. The anterior gonopods are complex, with the coxite and the telopodite about the same length and each usually with several branches. The coxite is easily seen and is a reliable taxonomic character. Somatic characters, such as color, size, number of ocelli, number and height of crests, density of granules, and shape of the anal tergite, are useful taxonomic characters for both sexes.

KEY TO THE GENERA OF STRIARIIDAE

1. Dorsal surface of body strongly flattened, especially at the anterior end. Mature males without labral spines ——— *Vaferaria*, n. gen.

¹I am very grateful to the following people for the opportunity of studying the specimens of millipeds recorded in this paper: Dr. T. C. Barr, Jr., Dr. H. P. Chandler, Dr. Robert deSaussure, Dr. Eugene N. Kozloff, and Dr. D. L. Wray. The assistance of Dr. H. F. Garner with the fossil specimens is also gratefully acknowledged.

Dorsal surface of body usually rounded, if flattened, only slightly.

Mature males with labral spines in all species in which males have been described

2. Eyes with 2 or 3 ocelli. Medial pair of crests thinner and more depressed than any others on all body segments. Collum with a deep transverse furrow. Not known whether males have labral spines

Amplaria

Eyes with 5 or more ocelli. Medial pair of crests as large as any others on all segments except the first. Collum without a deep transverse furrow. Mature male with 2 labral spines..... *Striaria*

Genus *Amplaria* Chamberlin

Amplaria Chamberlin, 1941, Bull. Univ. Utah, biol. ser., vol. 6, no.5, p. 9.

This genus includes the species *eutypa* Chamberlin and *nazinta* (Chamberlin). The presence of 12 crests on the collum is not a good diagnostic character for this genus.

Amplaria nazinta (Chamberlin)

Striaria nazinta Chamberlin, 1910, Ann. Ent. Soc. Amer., vol. 3, no. 4, pp. 242-243, pl. 35, figs. 2-6 (Portland, Oregon). Loomis, 1936, Jour. Washington Acad. Sci., vol. 26, no. 10, p. 408.

Amplaria nazinta, Chamberlin, 1941, Bull. Univ. Utah, biol. ser., vol. 6, no. 5, p. 9.

Oregon record.—Multnomah Co.: Portland, Skyline Blvd., in leaf mold in burned over forest, 1 ♂ of 28 segments, Apr. 28, 1957, Dale B. Monroe. This larva differs from the description of the female holotype in that on the collum there are 10 rather than 12 crests, the labrum has three teeth rather than two, and the eyes are composed of three distinct ocelli. The most striking characters of this species are the thick transverse ridge across the anterior surface of the collum and the reduction in height and thickness of the medial pair of crests on all segments.

Genus *Striaria* Bollman

Striaria Bollman, 1888, Ann. New York Acad. Sci., vol. 4, p. 108. Cook, 1899, Proc. U. S. Nat. Mus., vol. 21, pp. 671-672. Loomis, 1936, Jour. Washington Acad. Sci., vol. 26, no. 10, pp. 405-406.

This genus includes the species *californica* Cook, *carmela* Chamberlin, *eldora* Chamberlin, *nana* Loomis, and *shastae*, n. sp., from California, *antica* Causey from Indiana, *causeyae* Chamberlin from North Carolina, *columbia* Cook from the District of Columbia and Maryland, and *granulosa* Bollman from Tennessee, Kentucky, North Carolina, and Georgia.

Striaria antica Causey

Striaria antica Causey, 1952, Proc. Biol. Soc. Wash., vol. 65, p. 112, figs. 1-3 (Montgomery Co., Indiana).

Several corrections and additions should be made to the description of this species. The length of the collum is twice the length of the posterior subsegment of the second segment. The collum has 12 dorsal crests, of which the ventral one on each side is rudimentary; the other 10 crests are as thick as crests on the second segment. The ventral margin of the second segment is almost parallel with the sixth dorsal

crest of that segment, and the distance between them is very slightly greater than the distance between the fifth and sixth crests; the anterior-ventral corner of the ventral lobe is a right angle. Both the anterior and posterior margins of the posterior subsegments of segments 2, 3, and 4, as observed from a dorsal view, are in the form of broad obtuse angles instead of being straight or slightly rounded.

Striaria californica Cook

Striaria californica Cook, 1899, Proc. U. S. Nat. Mus., vol. 21, p. 675, pl. 53, fig. 2a (Marin Co., California). Loomis, 1936, Jour. Washington Acad. Sci., vol. 26, no. 10, p. 409, fig. 1f (Santa Cruz and Solano Cos., California).

California record: Marin Co., Lagunetas, 1 ♀, Apr. 7, 1943, H. P. Chandler. Length about 18mm., width 1.8mm., eyes composed of 9 or 10 ocelli, body pale brown in alcohol, ventral margin of collum with a shallow emargination near the posterior angle, angle formed by projection of ventral crest and sixth dorsal crest of second segment about 60 degrees.

Striaria causeyae Chamberlin

Striaria causeyae Chamberlin, 1940, Canadian Ent., vol. 72, p. 58 (Durham Co., North Carolina).

North Carolina record: Wake Co.: Raleigh, 1 ♂ of 28 segments, in leaf mold, May 10, 1950, D. L. Wray. This larva differs from the description of the male holotype in that the sixth pair of dorsal crests of the collum are rudimentary and the eyes have six ocelli. All crests and marginal ridges are lighter in color than the background color; posterior subsegments and collum darker than anterior subsegments; posterior subsegments have near their posterior margin a dark line that is emarginate between the crests; no longitudinal lateral bands. The sinuses that separate the three lobes of the anal tergite are deep and narrow, with the apices of the sinuses narrowly rounded.

Striaria granulosa Bollman

Striaria granulosa Bollman, 1888, Ann. New York Acad. Sci., vol. 4, p. 103 (Jefferson Co., Tennessee); 1893, Bull. U. S. Nat. Mus., no. 46, p. 83. Cook, 1899, Proc. U. S. Nat. Mus., vol. 21, no. 1169, pp. 672-674, pl. 53, figs. 1a-1j. Loomis, 1936, Jour. Washington Acad. Sci., vol. 26, no. 10, p. 409.

Striaria zygoleuca Hoffman, 1950, Jour. E. Mitchell Sci. Soc., vol. 66, no. 1, pp. 16-17, pl. 5, fig. 3 (Macon Co., North Carolina).

Georgia record: De Kalb Co.: Stone Mountain, 5462 Memorial Drive, 1 ♂ of 28 segments, in leaf mold, June 16, 1958, N. B. Causey.

Kentucky record: Bell Co.: Pine Mountain State Park, 2 larvae of 28 segments, June 17, 1940, N. B. Causey.

North Carolina records: Cabarrus Co.: Mount Pisgah, 1 ♀, Sept. 28, 1950; 2 ♂, Oct. 5, 1949. Henderson Co.: Bat Cave, 1 ♀ of 28 segments, May 15, 1950. Watauga Co.: Grandfather Mountain, larvae of 26 segments, Nov. 15, 1950. Yancey Co.: Mount Mitchell, 1 ♂ of 28 segments, Sept. 29, 1950; larvae of 26 segments, July 25, 1951. All of the North Carolina collections were made by D. L. Wray.

Striaria shastae, new species

Diagnosis: A cavernicolous species, the largest of the genus, distinguished by the reduction of body pigment, by the shallow body crests, and by the reduced number of crests, five pairs instead of six pairs, on the segments of the posterior half of the body.

Description of female syntypes: Length of largest specimen about 25mm., width 2.4mm. Color in alcohol from light tan to nearly white. Eyes with 7 or 8 black ocelli in 2 irregular rows.

Collum with 5 pairs of crests of equal height; below them is a sixth pair of shorter, or rudimentary, crests of the same height, but not reaching the posterior margin; in front of the middle three pairs of crests is the usual swollen area that is typical of the genus. Crests of segments 2 through 4 of equal height, slightly higher than those of the collum. Beginning with segment 5 the crests, especially the sixth pair, become progressively shallower; the sixth pair drops out entirely by segment 13 or 14, leaving only 5 pairs on segment 14 through 29. Ventral or marginal crests unusual in that at the anterior end they turn back and up, forming an acute tooth. Distance between the sixth crest of middle body segments and ventral crests is 4 or 5 times the distance between crests 5 and 6. Ventral lobes of second segment nearly horizontal, the antero-ventral angle oblique, its apex rounded; distance from ventral margin to sixth crest, as measured along the posterior margin of the posterior subsegment, 3 times the distance between crests 5 and 6; along the anterior margin, the distance is twice the distance between crests 5 and 6. Posterior margins of segments 2, 3, and 4, as viewed from above, straight. Segmental setae aciculate, about one-fourth the length of the dorsal crests. Surface of collum between crests thickly and coarsely granular; on the following segments the granules become progressively smaller and slightly sparser; much sparser on the sides, which are shining. Caudal tergite thickly granular, its medial lobe twice as wide and slightly longer than the lateral lobes, the sinuses between them relatively deep, open, the sides parallel and the apices narrowly rounded.

Mature males are unknown.

Type locality: California: Shasta Co.: Samwel Cave, from guano solution bowl, passage to guano solution bowl, and bottom of a pit 90 feet deep; all collections in total darkness; larvae of 23 segments, Jan. 7, 1957; larvae of 18, 28 segments, June 8, 1958; 1 ♀, larvae of 15, 18, 28 segments, June 11, 1958; all collections by R. deSaussure and R. Graham. Fossilized fragments of 3 specimens, in bone and dirt rubble from a filled crack, June 7, 1957, N. Slusser.

Striaria spp.

California record: Contra Costa Co.: Mount Diablo, altitude 3000 feet, 1 ♀ of 28 segments, May 8, 1947, H. P. Chandler. Length about 12mm., width 1.4mm., eyes with 5 ocelli in 2 uneven series.

Kentucky record: Franklin Co.: Hoy Cave 1 ♀ of 28 segments, L. Hubricht. Length about 12mm., width 1.1mm., eyes with 6 and 5 black ocelli in 2 uneven series, color tan, very near *S. columbiana* in many somatic features.

Genus Vaferaria, new genus

Diagnosis: Distinguished especially by the absence of spines on the

labrum of mature males and by the flattened dorsal surface.

Type species: Striaria imberbis Loomis.

Description: Similar to other genera of the family in body size and in the arrangement of ocelli, granules and striae. Differs in the flattened dorsum, the narrowed head, and in the mature male, the absence of labral spines and the presence of a very large, bluntly conic lobe on the second segment of the second legs. The gonopods have not been described carefully.

Vaferaria imberbis (Loomis), new combination

Striaria imberbis Loomis, 1936, Jour. Washington Acad. Sci., vol. 26, no. 10, pp. 408-409, fig. 1D (San Luis Obispo Co., California).

BIBLIOGRAPHY OF THE STRIARIIDAE

Bollman, Charles H.

1888. Notes upon a collection of Myriapoda from East Tennessee, with description of a new genus and six new species. Ann. New York Acad. Sci., vol. 10, pp. 106-112 [1893. Myriapoda from East Tennessee, with a description of a new genus and six new species. Ann. New York Acad. Sci., vol. 10, pp. 106-112 [1893. Myriapoda of North America, pp. 81-85].

Causey, Nell B.

1952. Four new chordeumoid millipeds from the United States. Proc. Biol. Soc. Washington, vol. 65, pp. 111-118.

Chamberlin, R. V.

1910. Diplopoda from the Western States. Ann. Ent. Soc. Amer., vol. 3, no. 4, 233-262, pls. 30-43.

1940. On some chilopods and diplopods from North Carolina. Canad. Ent., vol. 72, pp. 56-59.

1941. New Western millipeds. Bull. Univ. Utah, biol. ser., vol. 6, no. 5, pp. 1-23, 3 pls.

1947. Seven new American millipeds. Proc. Biol. Soc. Wash., vol. 60, pp. 9-16, 1 pl.

1953. Two new millipeds taken in California Caves. Ent. News, vol. 64, pp. 93-95.

Cook, O. F.

1899. The diplopod family Striariidae. Proc. U. S. Nat. Mus., vol. 21, no. 1169, pp. 667-676, pls. 53, 54.

Hoffman, Richard L.

1950. Records and descriptions of diplopods from the southern Appalachians. Jour. E. Mitchell Sci. Soc., vol. 66, no. 1, pp. 11-33, pls. 5-8.

Loomis, H. F.

1936. New millipeds of the American family Striariidae. Jour. Washington Acad. Sci., vol. 26, no. 10, 404-409, 1 fig.